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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

AN, SHAWN S

ART UNIT PAPER NUMBER

2613

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/962,315

Applicant(s)

HOUSE, GREGORY

Examiner

Shawn S An

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3 and 5-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3 and 5-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. As per Applicant's instruction in Paper 33 as filed on 12/15/03, claims 2-3 and 5-18 have been amended, and claim 19 has been newly added.

Claim Objections

2. Amended claim 12 is objected to because of following informalities:
On claim 12, line 1, "(Previously Added)" should be changed to --(Currently Amended)--.
Appropriate correction is required.
3. Claims 2-3, 5-10, and 19 are objected to because of the following informalities:
There is no basis for the recited limitation "triangulation" process in the specification.
Appropriate correction is required.

Response to Remarks

4. Applicant's arguments with respect to claims 2-3 and 5-18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. Claims 2-3 and 5-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subbarao (4,965,840) in view of Auty et al (5,809,161) and Applicant's admitted prior art.

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Regarding claims 2-3, 5-10, and 19, Subbarao discloses a three-dimensional structure estimation apparatus which measures a distance to an object, comprising:
a plurality of cameras (Fig. 5) for producing images of the object;
conversion means (Fig. 6) for converting at least one of the images outputted from the plurality of cameras such that the resolution with which the object is represented in each image coincide with each other (col. 17, lines 8-68); and
a depth image production section (Fig. 6) for comparing the images to calculate a distance to the object.

Subbarao fails to disclose the cameras having different viewing angles and having different resolution from each other. (Note: Subbarao's cameras' parameter of aperture size is directly related to the resolution).

Further, Auty et al teaches a vehicle monitoring system comprising a plurality of cameras (6, 8) for producing images of the object having different viewing angles and having different resolution from each other.

Furthermore, Applicant's admitted prior art (Fig. 6) teaches a conventional depth image production section for comparing the images using triangulation to calculate a distance to the object.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a three-dimensional structure estimation apparatus as taught by Auty et al to incorporate the cameras having different viewing angles and having different resolution from each other as taught by Auty et al and also incorporate the Applicant's prior art for comparing the converted images using triangulation method as an alternative/efficient way calculate the distance to the object.

Regarding claims 12, 14, 16, and 18, Auty et al discloses sampling image such that the resolution of interpolated images is approximately the same as the resolution of an image having a highest resolution (Fig. 1, 6).

Regarding claims 11, 13, 15, and 17, since Auty et al teaches sampling image such that the resolution of interpolated images is approximately the same as the resolution of an image having a highest resolution, it would have been quite obvious to choose a lowest resolution just as long as the resolutions with which the object is

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represented in each image coincide, thereby enabling a triangulation method to compute the distance.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

- A) Anandan et al (6,219,462 B1), Method and apparatus for performing global image alignment using any local match measure.
- B) Carollo et al (5,846,185), High resolution, wide field of view endoscopic viewing system.
- C) Reimer et al (6,061,086), Apparatus and method for automated visual inspection of objects.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn S An whose telephone number is 703-305-0099. The examiner can normally be reached on Flex hours (10).

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10. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SSA

Primary Patent Examiner

3/3/04